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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/988,108	11/19/2001	Tatsuro Yamazaki	35.C15955	8061

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EXAMINER

AWAD, AMR A

ART UNIT	PAPER NUMBER
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2675

DATE MAILED: 09/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/988,108

Applicant(s)

YAMAZAKI ET AL.

Examiner

Amr Awad

Art Unit

2675

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 19 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,4,5,7,9-12 and 15 is/are rejected.
- 7) ☒ Claim(s) 2,3,6,8,13 and 14 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The references cited in the Information Disclosure Statement filed on March 13, 2002 have been considered by the Examiner; see attached PTO-1449.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The last line of the claim recites "the change the pulse width" which is indefinite.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 4-5, 7, 9-12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (US patent NO. 5,734,361 provided by the Applicant; hereinafter referred to as Suzuki) in view of Uenuma (US patent NO. 6,091,381).

As to independent claim 1, Suzuki (figures 4 and 8) teaches a display apparatus (201) comprising:

Electron emission elements (cold cathode elements) aligned in a matrix on a substrate and driven by column lines and row lines (col. 10, lines 39-44);

a column line drive unit for driving the column lines (Dy1-Dyn) in a pulse width modulation manner by applying to each column line one of pulses which have different pulse widths respectively corresponding to gradation levels of a luminance signal to be displayed in the display apparatus (col. 13, lines 5-11);

a row line drive unit (202) for sequentially driving the row lines; first means for defining a plurality of blocks each of which includes at least one column line by dividing the column lines and a plurality of gradation steps each of which includes at least one gradation level by dividing the gradation levels, and detecting a block driving status which indicates how the gradation levels in each of the gradation steps are applied to the columns in each block (col. 11, lines 4-17) and,

calculating a voltage drop due to a resistance in the row line and the current flow by the approximating pulses on the column lines during each of the defined periods on the basis of the detected block driving status, determining a block voltage drop for each block estimated from the voltage drops over the plurality of periods, and modifying the luminance signal for each block according to the determined block voltage drop (col. 24, lines 24-47).

Suzuki does not teach a second means for defining a plurality of periods within one horizontal interval, the periods being associated with widths of approximating pulses corresponding respectively to the gradation steps.

However, Uenuma (figures 1, 4 and 6) teaches a display device capable of realizing step-less gradation to improve the quality of an image displayed (abstract). Uenuma teaches means for defining a plurality of periods within one horizontal interval, the width of approximating pulses (col. 4, line 32 through col. 5, line 4).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the teaching of Uenuma to be incorporated to Suzuki's device so as motivated by Uenuma, to provide a display device which is capable of realizing step-less gradation expression depending on a video signal inputted, to thereby extensively increase quality of an image displayed (col. 2, lines 7-12).

As to claims 4-5, Suzuki teaches that column driver adds a correction data according to the determined block voltage drops to the luminance signal in driving each column line with the luminance signal (col. 24, line 48 through col. 25, line 56).

As to claim 7, Suzuki teaches having a correction data for each column through a linear interpolation and applying the correction data to the column 30, lines 47-62).

As to claim 9, based on having claim 9 being depend on claims 1, 4, 5 and 7; as can be seen from Suzuki's reference that the display device is cold cathode. As to claim 9, based on having claim 9 being depended on claims 2-3 and 6, the claim is indicated to be allowed.

As to claim 10, as can be seen in figures 18A and 18B; Suzuki teaches that the display device is a type of surface conduction electron emission (col. 9, lines 34-36).

As to claim 11, the claim is method claim corresponds to an apparatus of claim 1, and would be analyzed as previously discussed with respect to claim 1.

As to claim 12, the limitations of claim 12 are substantially similar to the limitations of claim 1 and would be analyzed as previously discussed with respect to claim 1.

As to claim 15, Suzuki teaches having a correction data for each column through a linear interpolation and applying the correction data to the column 30, lines 47-62).

Allowable Subject Matter

7. Claims 2-3, 6, 8, 9 (when depend on claims 2-3 or 6), and 13-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ikeda (US patent NO. 5,940,053) teaches a current-dependent light-emitting element drive circuit for use in active matrix display device.

Sanou et al. (US patent NO. 6,121,942) teaches an image-forming apparatus with correction in accordance with positional deviations between electron-emitting devices and image-forming members.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amr Awad whose telephone number is (703)308-8485. The examiner can normally be reached on Monday-Friday, between 9:00AM to 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Saras can be reached on (703)305-9720. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4750.



A.A.